CLAIMS:

1. A gray scale reference voltage generator for connection to column drivers of a thick dielectric electroluminescent display, comprising:

a counter for receiving gray level data from an incoming video signal and in response counting for a time interval proportional to said gray level data; and

a non linear voltage ramp connected to said counter for generating a ramping voltage for application to said column drivers during said time interval, wherein said ramping voltage conforms to a curve having an inverted s-shape, with an initial convex portion followed by a concave portion so as to compensate for luminance versus voltage characteristics of said thick dielectric electroluminescent display.

2. The gray scale reference voltage generator of claim 1, wherein said initial convex portion conforms generally to a negative second derivative with respect to said time interval, and said concave portion conforms generally to a positive second derivative with respect to said time interval.

3. The gray scale reference voltage generator of claim 1, wherein said counter is an 8-bit counter for delineating said time interval to fully define 256 gray levels.

4. The gray scale reference voltage generator of claim 1, wherein said ramping voltage for a negative row voltage is $V_{g\,neg}(t_m - t)$ expressed as a function of the difference between the time t_m for the ramping voltage to reach a maximum luminance voltage value V_m at the end of said time interval, and said ramping voltage for a positive row voltage is $V_{g\,pos}.(t)$, where $V_{g\,pos}.(t) = V_m - V_{g\,neg}(t_m - t)$.

5. The gray scale reference voltage generator of claim 4, wherein said non-linear voltage ramp further comprises an integrator circuit and at least two current sources for generating and applying different currents to said integrator circuit such that when a first one of said current sources is connected to said integrator circuit a first segment of said ramping voltage is generated, when both of said current sources are connected in parallel to said integrator

circuit a second segment of said ramping voltage is generated, and when the second one of said current sources is connected to said integrator circuit a final segment of said ramping voltage is generated.

6. The gray scale reference voltage generator of claim 5, wherein said first one of said current sources generates a current that decreases during said time interval, and said second one of said current sources generates a current that increases during said time interval.

7. The gray scale reference voltage generator of claim 5, wherein said at least two current sources are time-dependent voltage feedback controlled current sources.

8. The gray scale reference voltage generator of claim 5, wherein said at least two current sources are constant current sources.

9. The gray scale reference voltage generator of claim 5, wherein said non-linear voltage ramp further comprises a threshold control circuit for controlled switching between said two current sources.

10. The gray scale reference voltage generator of claim 5, wherein said non-linear voltage ramp further comprises a frame polarity control circuit for to select between said ramping voltage for a positive row voltage and said ramping voltage for a negative row voltage.

11. The gray scale reference voltage generator of claim 5, wherein said current sources further include control inputs for controlling curvature of said first and second segments respectively.

12. The gray scale reference voltage generator of claim 9, wherein said threshold control circuit further includes a control input for setting a transition voltage between said first and second segments of said ramping voltage.